

What is claimed is:

1 1. A method comprising:
2 acquiring information about interfering base stations in a vicinity of a base
3 station of interest (BSOI); and
4 choosing one of said interfering base stations as a master base station for
5 said BSOI, wherein a master base station is a base station to which another base
6 station is to synchronize.

1 2. The method of claim 1, wherein choosing one of said interfering base
2 stations as a master base station includes:
3 when said interfering base stations are from multiple sync groups, selecting a
4 sync group from said multiple sync groups to be a master sync group, wherein a
5 sync group is a group of base stations that are currently synchronized with one
6 another;
7 when said interfering base stations are all from a common sync group,
8 identifying said common sync group as said master sync group; and
9 when said master sync group includes at least one master base station that is
10 also one of said interfering base stations and that has a received signal strength
11 within said BSOI that is adequate to perform accurate synchronization, assigning
12 one of said at least one master base station as a master base station of said BSOI.

1 3. The method of claim 2, further comprising:
2 delivering an ID of said assigned master base station and a corresponding
3 ranging rule to said BSOI.

1 4. The method of claim 2, wherein choosing one of said interfering base
2 stations as a master base station further includes:
3 when said master sync group does not include a master base station that is
4 also one of said interfering base stations and that has a received signal strength
5 within said BSOI that is adequate to perform accurate synchronization, selecting a
6 base station from said master sync group that is one of said interfering base stations
7 as the master base station of said BSOI; and
8 creating a new ranging rule for said selected master base station.

1 5. The method of claim 4, further comprising:
2 delivering an ID of said selected master base station and said new ranging
3 rule to said BSOI and said selected master base station.

1 6. The method of claim 2, further comprising:
2 when said interfering base stations are from multiple sync groups and one of
3 said multiple sync groups has been selected as said master sync group, giving said
4 BSOI master status over sync groups in said multiple sync groups other than said
5 master sync group.

1 7. The method of claim 6, further comprising:
2 identifying synchronization chains for said sync groups in said multiple
3 sync groups other than said master sync group, wherein each synchronization chain
4 originates at said BSOI; and
5 creating a new ranging rule for each master/slave level within each
6 synchronization chain.

1 8. The method of claim 1, wherein:
2 acquiring information includes receiving said information from said BSOI,
3 wherein said information is accompanied by a request to assign a master base
4 station to said BSOI.

1 9. A base station controller (BSC) comprising:
2 a receiver to receive a list of interfering base stations associated with a base
3 station of interest (BSOI); and
4 a controller to select a master base station for said BSOI from said list of
5 interfering base stations, wherein a master base station is a base station to which
6 another base station is to synchronize.

1 10. The BSC of claim 9, further comprising:
2 a sync group database to store data related to base station sync groups in an
3 associated wireless network, each sync group including one or more base stations in

4 said wireless network that are currently synchronized to one another, wherein said
5 controller is in communication with said sync group database.

1 11. The BSC of claim 10, wherein said controller is to:

2 when said base stations in said list of interfering base stations are from
3 multiple sync groups, select a master sync group from said multiple sync groups;

4 when said base stations in said list of interfering base stations are from a
5 common sync group, identify said common sync group as said master sync group;
6 and

7 select a base station from said list of interfering base stations, that is within
8 said master sync group, for use as a master base station for said BSOI.

1 12. The BSC of claim 11, wherein:

2 operation to select a base station from said list includes operation to:

3 when said master sync group includes at least one master base
4 station that is also one of said interfering base stations and that has a
5 received signal strength in said BSOI that is adequate to perform accurate
6 synchronization, assign one of said at least one master base stations as a
7 master base station of said BSOI.

1 13. The BSC of claim 12, wherein:

2 operation to select a base station from said list includes operation to:

3 when said master sync group does not include a master base station
4 that is also one of said interfering base stations and that has a receive signal
5 strength within said BSOI that is adequate to perform accurate
6 synchronization, select a base station from said master sync group that is
7 one of said interfering base stations as the master base station of said BSOI.

1 14. The BSC of claim 13, wherein:

2 operation to select a base station from said list includes operation to:

3 when said master sync group does not include a master base station
4 that is also one of said interfering base stations, create a new ranging rule for
5 said selected master base station.

1 15. The BSC of claim 11, wherein said controller is configured to:
2 when said base stations in said list of interfering base stations are from
3 multiple sync groups and one of said sync groups has been selected as a master sync
4 group:
5 give said BSOI master base station status over sync groups in said
6 multiple sync groups other than said master sync group;
7 identify synchronization chains for said sync groups in said multiple
8 sync groups other than said master sync group, wherein each
9 synchronization chain originates at said BSOI; and
10 create a new ranging rule for each master/slave level within each
11 synchronization chain.

1 16. The BSC of claim 9, further comprising:
2 a transmitter to transmit a master base station ID and a corresponding
3 ranging rule to said BSOI.

1 17. A method comprising:
2 acquiring an ID of a master base station and a corresponding ranging rule;
3 initially synchronizing to said master base station while in a subscriber
4 station mode of operation; and
5 periodically listening for a ranging code from said master base station while
6 in a base station mode of operation, after initially synchronizing, for use in
7 refreshing synchronization with said master base station.

1 18. The method of claim 17, wherein periodically listening includes:
2 determining whether a frame number specified by said ranging rule has been
3 reached;
4 allocating a ranging time slot in a current frame when said frame number has
5 been reached; and
6 monitoring said allocated ranging time slot for said ranging code.

1 19. The method of claim 17, further comprising:

2 estimating frequency and time offsets using said ranging code when a
3 ranging code is detected; and
4 adjusting a clock using said frequency and time offsets.

1 20. An apparatus comprising:
2 a wireless transceiver; and
3 a controller to achieve and maintain synchronization between said apparatus
4 and interfering base stations in a wireless network, said controller to:
5 determine the identity of a master base station within said wireless
6 network to which said apparatus is to synchronize;
7 establish initial synchronization with said master base station while
8 in a subscriber station mode of operation; and
9 periodically look for a ranging code transmitted by said master base
10 station for use in refreshing synchronization with said master base station
11 after initial synchronization has been established.

1 21. The apparatus of claim 20, wherein:
2 said controller is to periodically look for said ranging code while in a base
3 station mode of operation.

1 22. The apparatus of claim 20, wherein:
2 said controller is to acquire information describing a ranging rule associated
3 with said master base station, wherein said controller is to look for said ranging
4 code at times specified by said ranging rule.

1 23. The apparatus of claim 20, wherein:
2 said controller is to estimate frequency and time offsets using said ranging
3 code, when a ranging code has been detected, and use said frequency and time
4 offsets to correct a clock of said apparatus.

1 24. The apparatus of claim 20, wherein:
2 said controller is to: collect information on interfering base stations in an
3 environment about said apparatus and deliver said collected information, along with

4 a request for assignment of a master base station, to a remote network controller
5 when said apparatus is to join said wireless network.

1 25. A base station comprising:
2 at least one dipole antenna;
3 a wireless transceiver in communication with said at least one dipole
4 antenna; and
5 a controller to achieve and maintain synchronization between said base
6 station and interfering base stations in a wireless network, said controller to:
7 determine the identity of a master base station within said wireless
8 network to which said base station is to synchronize;
9 establish initial synchronization with said master base station while
10 in a subscriber station mode of operation; and
11 periodically look for a ranging code transmitted by said master base
12 station for use in refreshing synchronization with said master base station
13 after initial synchronization has been established.

1 26. The base station of claim 25, wherein:
2 said controller is to periodically look for said ranging code while in a base
3 station mode of operation.

1 27. The base station of claim 25, wherein:
2 said controller is to acquire information describing a ranging rule associated
3 with said master base station, wherein said controller is to look for said ranging
4 code at times specified by said ranging rule.

1 28. An article comprising a storage medium having instructions stored thereon
2 that, when executed by a computing platform, operate to:
3 acquire information about interfering base stations in a vicinity of a base
4 station of interest (BSOI); and
5 choose one of said interfering base stations as a master base station for said
6 BSOI, wherein a master base station is a base station to which another base station
7 is to synchronize.

1 29. The article of claim 28, wherein:
2 operation to choose one of said interfering base stations as a master base
3 station includes operation to:
4 when said interfering base stations are from multiple sync groups,
5 select a sync group from said multiple sync groups to be a master sync
6 group, wherein a sync group is a group of base stations that are currently
7 synchronized with one another;
8 when said interfering base stations are all from a common sync
9 group, identify said common sync group as said master sync group; and
10 when said master sync group includes at least one master base
11 station that is also one of said interfering base stations and that has a
12 received signal strength within said BSOI that is adequate to perform
13 accurate synchronization, assign one of said at least one master base stations
14 as a master base station of said BSOI.

1 30. The article of claim 29, wherein:
2 operation to choose one of said interfering base stations as a master base
3 station further includes operation to:
4 when said master sync group does not include a master base station
5 that is also one of said interfering base stations and that has a received signal
6 strength within said BSOI that is adequate to perform accurate
7 synchronization, select a base station from said master sync group that is
8 one of said interfering base stations as the master base station of said BSOI;
9 and
10 create a new ranging rule for said selected master base station.